07/30/2012 47-033-04934 デ

State of West Virginia Division of Environmental Protection Section of Oil and Gas Well Operator's Report of Well Work

Farm name:

TURNER, DAVID R. & SANDRA

Operator Well No.: HIRAM LYNCH 112

LOCATION:

Elevation:

1,295'

Quadrangle:

WOLF SUMMIT 7.5'

District:

TEN MILE

O----ton IIADI

5.070 Feet south of

County: HARRISON 39 Deg 17 Min 30 Sec.

Latitude: Longitude:

11,010 Feet west of

80 Deg 27 Min 30 Sec.

Company Address:	HG Ener PO Box : Vienna, '		Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Trista	ın Jenkins				
Date Permit Is	ssued:	07/30/2012				
Date Well Wo	ork Commenced:	08/02/2012				
Date Well Wo	ork Completed:	08/07/2012		į		
Verbal Pluggi	ng:			:		
Date Permissi	on Granted On:					
Rotary X	Cable	Rig	7"	611'	611'	existing
Total vertical	Depth (ft):	3050'				
Total Measure	ed Depth (ft):	3050'				
Fresh Water I	epth (ft):		4 1/2"	2994.95'	2994.95'	existing
Salt Water De	pth (ft):					
Is Coal being	mined in ares (Y/N	I)? No				
Coal Depths (NA		PECE	WED	
Void(s) encou	ntered (Y/N) depti	n(s):	q	ffice of C	II & Gas	•
				DEC 1	2012	

OPEN FLOW DATA	* Waterfloo	* Waterflood Injector		WV Department of		
Producing formation	n	Fifth Sand	Envirgn	nental Protec	2906'-2914'	
Gas: Initial oper		* MCF	d Oil: Initial ope	n flow '	* Bbl/d	
Final open		* MCF	/d Final oper	n flow	* Bbl/d	
Time of o	pen flow between	en initial and	final tests	* Hou	rs	
Static rock pressure	-	* psig	(surface pressure)	after	* Hours	
Second producing	formation			zone depth (ft)		
Gas: Initial ope		MCF	d Oil: Initial ope	n flow	Bbl/d	
Final open		MCF			Bbl/d	
Time of o	pen flow between	en initial and	final tests	Hou	rs	
Static rock pressur	_	psig	(surface pressure)	after	Hours	

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

information is true, accurate,

11/19/12

Were core samples taken?		en? No Were cuttings caught during drilling? No					
Were	Y Y/N	Electrical,	N Y/N	Mechanical, _	N Y/N	or Geophysical logs recorded on this well?	
STIM	ULATING, F	PHYSICAL CHAN	IGE, ETC. 2	2). THE WELL LOG WI	HICH IS A DAL ENC	PERFORATED INTERVALS, FRACTURING OR SYSTEMATIC DETAILED GEOLOGICAL RECORD OF OUNTERED BY THE WELLBORE FROM SURFACE TO	
Treati	ment :	Treated perfs & 5,200# 20/		14' w/ 300 gals 15%	HCL, 1	71 bbls cross linked gel,	
<u>Well I</u>	<u>_og :</u>	See original	WR35 rep	ort			

06/18/2012 47-033-01949 ₽

State of West Virginia Division of Environmental Protection Section of Oil and Gas Well Operator's Report of Well Work

Farm name:

ELSEY, KENNETH D.

Operator Well No.: BEESON H. BROWN 14

LOCATION:

Elevation:

1,134'

Quadrangle: WOLF SUMMIT 7.5'

District:

TEN MILE

County: HARRISON

Latitude:

5,950 Feet south of

39 Deg 20 Min 0 Sec.

Longitude:

11,760 Feet west of

80 Deg 25 Min

0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Tristan Jenkins				
Date Permit Is	sued: 06/18/2012				
Date Well Wo	ork Commenced: 09/14/2012				
Date Well Wo	ork Completed: 09/21/2012				
Verbal Pluggi	ng:				
Date Permissi	on Granted On:			1015	
Rotary X	Cable Rig	8 5/8"	1215'	1215'	existing
Total vertical	Depth (ft): 4798'			<u> </u>	
Total Measure	ed Depth (ft):				
Fresh Water I	Depth (ft):	5 1/2"	4798'	4798'	existing
Salt Water De					<u></u>
	mined in ares (Y/N)? No				
Coal Depths				CEIVEL	
Void(s) encou	intered (Y/N) depth(s):		Office	of Oil &	Gas
	NONE		DE	C 1 0 2012	
	+ With and Dundygor		WVD	epartme	nt of

OPEN FLOW DATA	* Waterflood Producer	Environmental Protession2696	
Producing formation Gas: Initial open flo Final open flo Time of oper Static rock pressure	* MCF/d flow between initial and final	Pay zone depth (ft) Oil: Initial open flow Final open flow tests * Hours face pressure) A graph of the part of	
Second producing form Gas: Initial open flo Final open flo Time of open Static rock pressure	w MCF/d MCF/d MCF/d n flow between initial and final	Pay zone depth (ft) Oil: Initial open flow Final open flow Hours face pressure Bbl/d Hours Hours Hours	-

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Be Klein

1/19/12

Were	core samp	les taken?	No		Were cut	ttings caught during drilling? No
	ULATING, F	PHYSICAL CHAN	GE, ETC. 2). 7	THE WELL LOG W	/HICH IS A	or Geophysical logs recorded on this well? PERFORATED INTERVALS, FRACTURING OR SYSTEMATIC DETAILED GEOLOGICAL RECORD OF OUNTERED BY THE WELLBORE FROM SURFACE TO
Treat	ment :	Treated perfs linked gel, and			/ 500 gals	s 15% HCL, 246 bbls cross
Well]	Log:	See original V	VR35 report			

09/18/2012 47-103-02830

State of West Virginia Division of Environmental Protection Section of Oil and Gas Well Operator's Report of Well Work

Farm name:

WAYNE, ROBERTA B.

Operator Well No.: ANTHONY LOVEALL 9

LOCATION:

Elevation:

1,058'

Quadrangle:

PINE GROVE 7.5'

District:

GREEN

County: WETZEL

Latitude:

11,970 Feet south of

39 Deg 32 Min 30 Sec.

Longitude:

5,375 Feet west of

80 Deg 40 Min 0 Sec.

Company Address:	HG Energ PO Box 5 Vienna, V		Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Dere	k Haught				
Date Permit Is	ssued:	09/18/2012				,
Date Well Wo	ork Commenced:	10/19/2012	_			
Date Well Wo	ork Completed:	11/07/2012				
Verbal Pluggi	ng:					
Date Permissi	on Granted On:					
Rotary X	Cable	Rig	7"	1030'	1030'	255 sks
Total vertical	Depth (ft):	3110'				
Total Measur	ed Depth (ft):	3110'				
Fresh Water I	Depth (ft):	210', 650'	4 1/2"	3071.2'	3071.2'	225 sks
Salt Water De	epth (ft):	2150'				
Is Coal being	mined in ares (Y/N	I)? No	_			
Coal Depths	(ft): x	793'-800'				
Void(s) enco	untered (Y/N) depti NONE	h(s):				

OPEN FLOW DATA	* Waterflood Inject	etor			2886'-2901'
Producing formation Gas: Initial open Final open Time of of Static rock pressure	flow * flow * pen flow between in	MCF/d itial and final	il: Initial open flo Final open flo		2915'-2915' Bbl/d Bbl/d rs Hours
Second producing : Gas: Initial open Final open Time of c	formation flow flow ppen flow between ine	itial and final psig (surfa	Final open florests Final open florests ace pressure)	Hou after	Hours
I certify under penalty of law that attachments and that, based on	I have personally examine my inquiry of those individing information in the second sec	ed and am familiar v luals immediately re is true, accurate, and	with the information esponsible for obtain decomplete.	submitted of the information of	acountert and all the

STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

<u>Treatment:</u> Treated perfs 2886'-2901' & 2915'-2919', 250 gals 15% HCL, 326 bbls cross linked gel, and 20,000# 20/40 sand.

Well Log: All depths are measured relative to KB (8' AGL).

Shale w/ sand streaks	0	-	793
Coal	793	-	800
Shale w/ sand streaks	800	-	802
Sand	802	-	830
shale	830	-	916
sand	916	-	946
shale	946	-	1016
sand	1016	-	1033
shale	1033	-	1322
sand	1322	-	1354
shale	1354	-	1416
sand	1416	-	1446
shale	1446	-	1458
sand	1458	-	1524
shale	1524	-	1548
sand	1548	-	1572
shale	1572	-	1820
sand	1820	-	1850
shale	1850	-	1994
sand	1994	-	2008
shale	2008	-	2020
sand	2020	-	2033
Big Lime	2033	-	2090
Big Injun	2090	-	2280
shale	2280	-	2856
Gordon stray	2856	-	2873
shale	2873	-	2880
Gordon	2880	-	2901
shale	2901		2913
sand	2913	. =	2919
shale	2919	• •	3110
TD	3110		
T.DLogger	3099	KB	

3110

KB

T.D. -Driller

State of West Virginia **Division of Environmental Protection** Section of Oil and Gas Well Operator's Report of Well Work

Farm name:

BURNSIDE, WILLIAM

Operator Well No.: HIRAM LYNCH 201

LOCATION:

Elevation:

1,250'

Quadrangle:

WOLF SUMMIT 7.5'

District:

TEN MILE

County: HARRISON

Latitude:

3,405 Feet south of

39 Deg 17 Min 30

Longitude:

11,700 Feet west of

Sec. 80 Deg 27 Min 30 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105		Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Trista	n Jenkins				
Date Permit Is	sued:	07/27/2012				
Date Well Wo	ork Commenced:	08/01/2012				
Date Well Wo	ork Completed:	08/07/2012				
Verbal Pluggi	ng:		1			
Date Permissi	on Granted On:					
Rotary X	Cable	Rig	7"	630'	630'	existing
Total vertical	Depth (ft):	3060'				
Total Measure	ed Depth (ft):	3060'				
Fresh Water I	Depth (ft):		4 1/2"	2994.15'	2994.15'	existing
Salt Water De	pth (ft):					
Is Coal being	mined in ares (Y/N	I)? No				
Coal Depths (ft): x	596'-603'				
Void(s) encou	intered (Y/N) depth	n(s):				

OPEN FLOW DATA

* Waterflood Producer

Producing formation	Fifth Sand	Pay zone depth	(π) _	2881-2912
Gas: Initial open flow	* MCF/d O	l: Initial open flow	*	Bbl/d
Final open flow	* MCF/d	Final open flow	*	Bbl/d
Time of open flow between	en initial and final t	ests <u>* </u>	Hours	
Static rock pressure	* psig (surfa	ce pressure) after	r	Hours
Second producing formation		Pay zone depth	(ft)	
Second producing formation	MCE/d O	Pay zone depth	(ft)	Bbl/d
Gas: Initial open flow	MCF/d O	Pay zone depth il: Initial open flow Final open flow		Bbl/d Bbl/d
	MCF/d een initial and final t	il: Initial open flow Final open flow	Hours	

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

4/19/12

Were core samples taken?		No	•	Were cuttings caught during drilling? No					
THE	III ATING P	PHYSICAL CHAN BOTTOMS OF AL	GE, ETC. 2). L FORMATI 2881'-2912	THE WELL LOG WHONS, INCLUDING CO TOTAL DE	IICH IS A DAL ENC EPTH.	or Geophysical logs recorded on this well? F PERFORATED INTERVALS, FRACTURING OR SYSTEMATIC DETAILED GEOLOGICAL RECORD OF OUNTERED BY THE WELLBORE FROM SURFACE TO			
Well :	Log:	See original V	WR35 repo	rt					

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47-103-02829

2652'-2658'

State of West Virginia **Division of Environmental Protection** Section of Oil and Gas Well Operator's Report of Well Work

Farm name:

WAYNE, ROBERTA B.

Operator Well No.: ANTHONY LOVEALL 8

LOCATION:

Elevation:

810'

PINE GROVE 7.5' Quadrangle:

District:

GREEN

County: WETZEL

Latitude:

11,010 Feet south of

30 Sec. 39 Deg 32 Min

Longitude:

5,145 Feet west of

80 Deg 40 Min

Sec.

PO Box 55	19	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Derek	Haught				
sued: (09/18/2012	_			
rk Commenced:	10/19/2012				
ork Completed:	11/07/2012		,		ļ
ng:					
on Granted On:					200 1
Cable	Rig	7"	805'	805'	200 sks
Depth (ft):	2870'				
ed Depth (ft):	2870'				
Depth (ft):	60', 140'	4 1/2"	2835.2'	2835.2'	210 sks
	1560'				ļ
mined in ares (Y/N)	? No				
(ft): x	540'-550'				<u> </u>
intered (Y/N) depth NONE	(s):				
	PO Box 55 Vienna, W Derek ssued: ork Commenced: ork Completed: ng: on Granted On: Cable Depth (ft): ed Depth (ft): cepth (ft): mined in ares (Y/N) (ft): x untered (Y/N) depth	ork Commenced: 10/19/2012 ork Completed: 11/07/2012 ng: on Granted On: Cable Rig Depth (ft): 2870' ed Depth (ft): 60', 140' opth (ft): 1560' mined in ares (Y/N)? No (ft): x 540'-550' intered (Y/N) depth(s):	PO Box 5519 Vienna, WV 26105 Derek Haught ssued: 09/18/2012 ork Commenced: 10/19/2012 ork Completed: 11/07/2012 ork Completed: 11/07/2012 org: on Granted On: Cable Rig 7" Depth (ft): 2870' ced Depth (ft): 2870' Depth (ft): 1560' mined in ares (Y/N)? No (ft): x 540'-550' intered (Y/N) depth(s):	PO Box 5519 Vienna, WV 26105 Derek Haught ssued: 09/18/2012 ork Commenced: 10/19/2012 ork Completed: 11/07/2012 org: on Granted On: Cable Rig 7" 805' Depth (ft): 2870' ed Depth (ft): 2870' cet Depth (ft): 1560' mined in ares (Y/N)? No (ft): x 540'-550' intered (Y/N) depth(s):	PO Box 5519 Vienna, WV 26105 Derek Haught ssued: 09/18/2012 ork Commenced: 10/19/2012 ork Completed: 11/07/2012 org: On Granted On: Cable Rig 7" 805' 805' Depth (ft): 2870' oed Depth (ft): 2870' Depth (ft): 1560' omined in ares (Y/N)? No (ft): x 540'-550' ominered (Y/N) depth(s):

OPEN FLOW DATA	0	PEI	٧F	LO	W	D/	ľ	Ά
----------------	---	-----	----	----	---	----	---	---

* Waterflood Injector

Descripe formation	Gordo	Pay zone depth (ft)	, 7	2688'-2690.5'
Producing formation	*		*	Bbl/d
Gas: Initial open flow	*	MCF/d Oil: Initial open flow		
Final open flow	*	MCF/d Final open flow _	*	Bbl/d
Time of open flow between	initial	and final tests * T	lours	
Static rock pressure	*	psig (surface pressure) after _	*	Hours
Static rock pressure		•	1500	3
Second producing formation		Pay zone depth (R	EMIL	Gas
		MCF/d Oil: Initial open flow	S. A. Del .c	≫`Bbl/d
Gas: Initial open flow Final open flow		MCF/d Final open flows Co	 	<u></u> Вы/а
Time of open flow between	initial	and linal tests	TOWN	I I no server file
Static rock pressure				HOURS
Junta 10011 process		-	gara <i>t</i>	THE POLITY OF ALL THE

I certify under penalty of law that I have personally examined and am familiar with the information submitted on the discounter and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information is true, accurate, and complete.

2672

2680

2692

2870

2647

2672

2680

2692

2870

T.D. -Logger 2889 KB T.D. -Driller 2870 KB

Gordon

shale

sand

shale

TD

State of West Virginia

Department of Environmental Protection Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Dice, Glen D. And Catherine

Operator Well No.: Dice # 1

DATE: December 19, 2012

API#: 47-001-03283

LOCATION: Elevation: 1,543'

Quadrangle: Nestorville 7.5'

District: Pleasants County: Barbour Latitude: 9,870 Feet South of 39 Deg. 15 Min. 00 Sec. Longitude: 9,990Feet West of 79 Deg. 57 Min. 30 Sec.

Company: Anja Resources

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 12 Millbrook Rd				
Bridgeport, WV 26330	16"	35'	35'	
Agent: Johnnie Rominger				
Inspector: Bill Hatfield	11 3/4"	588'	588'	290 sx.
Date Permit Issued: 9/21/2012				
Date Well Work Commenced: 10/5/11	8 5/8"	1098'	1098'	230 sx.
Date Well Work Completed: 10/26/11				
Verbal Plugging:	4 1/2"	5084	5084'	255 sx.
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 5,184'				
Fresh Water Depth (ft.): 430'				
Salt Water Depth (ft.):				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 505'				

OPEN FLOW DATA

4th Elk Pay zone depth (ft) 4859' - 4961' Producing formation Gas: Initial open flow odor MCF/d Oil: Initial open flow Bbl/d Final open flow MCF/d Final open flow Bbl/d 500 Time of open flow between initial and final tests 72 Hours Static rock Pressure 1000 psig (surface pressure) after 24 Hours Second producing formation Pay zone depth (ft) 3746' - 4680' Riley, Benson, 1st Elk & 2nd Elk, 3rd Elk Gas: Initial open flow * MCF/d Oil: Initial open flow Bbl/d Bbl/d Final open flow MCF/d Final open flow Time of open flow between initial and final tests Hours Static rock Pressure * psig (surface pressure) after Hours * Comingled

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATI ILEKVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELD LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed:

By: Johnnie Rominger /2-/9-/2

Date: INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL

Midwest Energy, Inc.	Dice #1	47-001-03283	
Riley	3746 - 3835	25,000 #20/40	279bbl. SLF
Benson	4040 - 4084	35,000# 20/40	363 bbl. SLF
I st & 2 nd Elk	4294 - 4477	25,000# 20/40	314 bbl. SLF
3 rd Elk	4668 - 4680	30,000# 20/40	352 bbl. SLF
4 th Elk	4859 - 4961	25,000# 20/40	309 bbl. SLF

.....

FORMATION	COLOR	HARD/SOFT	TOP	BOTTOM	REMARKS
KB/fill			0	16	
Sand & shale			16	48	.25" FW @ 80'
Sand			48	376	1" FW @ 249'
Sand & Shale			376	411	.25" FW @ 333'
Sand			411	462	9
Coal			462	466	.5" ST @ 501'
Sand & Shale			466	1221	•
Lime			1221	1378	
Log Tops:					
Squal			1630	1647	Oil Odor
4th Sand			2118	2140	
Bayard			2430	2455	Gas Check@ 2522'
Speechley			2932	2942	12/10 – 2"
Riley			3730	3840	
Benson			4030	4090	
1 st Elk			4258	4300	
2 nd Elk			4416	4485	
3 rd Elk			4660	4685	
4 th Elk			4855	4970	
Total Depth			5184		Gas check @TD 12/10 -2

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	1/11/2013	
API#:	47-033-05621	

Farm name: Lowe, Francis L. & Nancy P.	Operator Well No.: Lowe Unit 1H				
LOCATION: Elevation: 1214'	Quadrangle: _W	Vest Milford			
District: Union	County: Harris	on			
Latitude: 8757 Feet South of 39 Deg.					
Longitude 817 Feet West of 80 Deg.	25 <u>Min.</u>	oo Sec	,		
Company: Antero Resources Appalachian Corp					
Address: 1625 17th Street	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.	
Denver, CO 80202	20° 94#	40'	40'	38 Cu. Ft.	
Agent: CT Corporation System	13 3/8" 48#	576'	576'	800 Cu. Ft. Class A	
Inspector: Tristan Jenkins	9 5/8" 36#	2676'	2676'	1090 Cu. Ft. Class A	
Date Permit Issued: 6/7/2012	5 1/2" 23#	16227'	16227'	4010 Cu. Ft. Class H	
Date Well Work Commenced: 6/12/2012					
Date Well Work Completed: 11/2/2012					
Verbal Plugging: N/A					
Date Permission granted on: N/A	2 3/8" 4.7#	6981'			
Rotary Cable Rig				·	
Total Vertical Depth (ft): 6946' TVD					
Total Measured Depth (ft): 16227' MD					
Fresh Water Depth (ft.): est. 195'					
Salt Water Depth (ft.): est. 623'					
Is coal being mined in area (N/Y)? N					
Coal Depths (ft.): Pad constructed on rectained PHG strip bench					
Void(s) encountered (N/Y) Depth(s) None			<u></u>		
OPEN FLOW DATA (If more than two producing formation	one nlegge inclu	de additional d	ata on separate :	sheet)	
Producing formation Marcellus Pay	zone depth (ft)	873' TVD (To	p)		
Gas: Initial open flow — MCF/d Oil: Initial open f	low N/A B	bl/d		ation 2013	
Final open flow 9886 MCF/d Final open flow	w <u>NA</u> Bt	ol/d	^{⊘(S)} C	Oil x	
Time of open flow between initial and final tests N/A	Hours	3	, ac	N 3013	
Static rock Pressure 3600 psig (surface pressure) a	fterHou	ITS	Chillian"	in N. A. 2013	
Second producing formationPay zo	one depth (ft)		7/	~	
Gas: Initial open flowMCF/d Oil: Initial open f	•	b1/d			
Final open flow MCF/d Final open flo		bl/d			
Time of open flow between initial and final tests	Hour				
Static rock Pressurepsig (surface pressure) a	fterHou	ırs			

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Signature

Were core samples taken? Yes	No_X Were	cuttings caught during dril	ling? Yes X No
Were Electrical, Mechanical or Geophy		ves please list Yes - CE	3L
This is a subsequent well. Antero only runs wireline logs on the fi	rst well on a multi-well pad (Wagner Unit 1H, API# 47-033-	05465). Please reference the wireline logs so	ubmitted with Form WR-35 for Wagner Unit 1H.
NOTE: IN THE AREA BELOW FRACTURING OR STIMULATING DETAILED GEOLOGICAL RECO COAL ENCOUNTERED BY THE V	G, PHYSICAL CHANGE, ETC. ORD OF THE TOPS AND BO	2). THE WELL LOG W OTTOMS OF ALL FO	HICH IS A SYSTEMATIC
Perforated Intervals, Fracturing, or Stim	ulating:		
Perforations: 7062'-16163' (1884	holes)		
Frac'd w/ 14,000 gals 15% HCL	Acid, 188,434 bbls Slick Wa	ater carrying 1,014,69	91# 100 mesh,
3,828,095# 40/70 and 2,321,42	2# 20/40 sand.		
	·		
Plug Back Details Including Plug Type	and Depth(s): N/A		
Formations Encountered:	Top Depth	/	Bottom Depth
Surface:			
Big Lime est.	1453'	1564'	
Big Injun est.	1565'	1972'	
Fifty Foot Sandstone est.	1973'	2115'	
Gordon est.	2116'	2382'	
Fifth Sandstone est.	2383'	2435'	
Bayard est.	2436'	3089'	
Speechley est.	3090'	3305'	
Balltown est.	3306'	3817'	
Bradford est.	3816'	4482'	
Benson est.	4483'	4786'	
Alexander est.	4787'	5013'	
Elk est.	5014'	5541'	
Rhinestreet est.	5542'	6464'	
Middlesex	6465'	6552'	
West River Shale	6553'	6649'	
Burket	6650'	6678'	

6679'

6873'

Tully

Marcellus

6872'

6946' TVD

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	1/11/2013	
API #:	47-033-05627	

ATION: Elevation: 1176	Quadrangle: Wolf Summit County: Напізоп				
District: Sardis					
Latitude: 12860 Feet South of 39 Deg.	20 Min.	© Sec.	•		
Longitude 5655' Feet West of 80 Deg.	22 Min.	30 Sec.	•		
Company: Antero Resources Appalachian Corp					
1625 17th Street	Casing &	Used in drilling	Left in well	Cement fill up Cu. Ft.	
Address: Denver, CO 80202	Tubing 20" 94#	80'	80'	77 Cu. Ft. Class A	
OTT Comment in Street			367'	510 Cu. Ft. Class A	
Agent: CT Corporation System	13 3/8" 54.5#	367'			
Inspector: Tristan Jenkins	9 5/8" 36#	2579'	2579'	1050 Cu. Ft. Class A	
Date Permit Issued: 6/19/2012	5 1/2" 20#	13911'	13911'	3403 Cu. Ft. Class H	
Date Well Work Commenced: 6/26/2012					
Date Well Work Completed: 10/25/2012					
Verbal Plugging: N/A					
Date Permission granted on: N/A	2 3/8" 4.6#	7178'			
Date I crimission granted on.					
Rotary Cable Rig	t dellad)				
Total Vertical Depth (ft):7126' TVD (deepest poin	nt armea)	 			
Total Measured Depth (ft): 7042' TVD (BHL), 1391	TI MID				
Fresh Water Depth (ft.): est. 30', 230'					
Salt Water Depth (ft.): 853', 1535'					
Is coal being mined in area (N/Y)? N					
Coal Depths (ft.): Pad is constructed on reclaimed PHG coal bench					
Void(s) encountered (N/Y) Depth(s) None					
	<u>. 1 </u>	<u></u>			
OPEN FLOW DATA (If more than two producing formation	ons please inclu	de additional d	ata on separate	sheet)	
	zone depth (ft)7	T:))		
Gas: Initial open flow MCF/d Oil: Initial open f		bVd bVd			
Final open flow 5235 MCF/d Final open flow					
Time of open flow between initial and final tests N/A				a be	
Static rock Pressure 3300 psig (surface pressure) a	nernou	12		COMPLY GARY	
Second producing formationPay zo	ne depth (ft)		BI	Ceived A Cape	
Gas: Initial open flowMCF/d Oil: Initial open f		bl/d		9 Cr. 8 Sills	
Final open flow MCF/d Final open flow		ol/d	Qu.	CHAN	
Time of open flow between initial and final tests		3		34	
Static rock Pressurepsig (surface pressure) a		ırs			

Were core samples taken? Yes	No X Were cu	uttings caught during drilling? Yes X NoNo
Were Electrical, Mechanical or Geophys	sical loss recorded on this wall? If.	vas mlassa list Yes - CBL
This is a subsequent well. Antero only runs wireline logs on the f	first well on a multi-well pad (Hurst Unit 1H, API# 47-033-05)	626). Please reference the wireline logs submitted with Form WR-35 for Hurst Unit 1H.
FRACTURING OR STIMULATING	G, PHYSICAL CHANGE, ETC. 2) ORD OF THE TOPS AND BOT	. DETAILS OF PERFORATED INTERVALS,). THE WELL LOG WHICH IS A SYSTEMATIC TOMS OF ALL FORMATIONS, INCLUDING O TOTAL DEPTH.
Perforated Intervals, Fracturing, or Stim	ulating:	
Perforations: 7237'-13,847' (1428	3 holes)	
Frac'd w/ 11,592 gals 15% HCL	Acid, 140,306 bbls Slick Wat	er carrying 684,590# 100 mesh,
2,657,020# 40/70 and 1,739,500)# 20/40 sand.	
Plug Back Details Including Plug Type	and Depth(s): N/A	
Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Big Lime est.	1436'	1486'
Big Injun est.	1487'	2028'
Fifty Foot Sandstone est.	2029'	2210'
Gordon est.	2211'	2455'
Fifth Sandstone est.	2456'	2487'
Bayard est.	2488'	3146'
Speechley	3147'	3370'
Balltown	3371'	3908'
Bradford	3909'	4476'
Benson	4477'	4864'
Alexander	4865'	5140'
Elk	5141'	6647'
Middlesex	6648'	6823'
Burket	6824'	6855'
Tuliy	6856'	7080'
Marcellus	7081'	7126' TVD

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	1/11/2013
API#:	47-033-05626

ON: Elevation: 1176		Quadrangle: <u>V</u>	Volf Summit		
District: Sardis		County: Harris			
Latitude: 12851' Feet South of					
Longitude 5658' Feet West of	80 Deg.	22 Min.	30 Se	c.	
Company: Antero Resources Appalac	hian Corp			T	
1625 17th Street		Casing &	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 1029 17th Sheet		Tubing 20° 94#	72'	72'	69 Cu. Ft. Class A
Denver, CO 80202	···				
Agent: CT Corporation System		13 3/8" 68#	347'	347'	482 Cu. Ft. Class A
Inspector: Tristan Jenkins		9 5/8" 36#	2578'	2578'	1050 Cu. Ft. Class A
Date Permit Issued: 6/19/2012		5 1/2" 20#	13549'	13549'	3303 Cu. Ft. Class H
Date Well Work Commenced: 6/26/20	12				
Date Well Work Completed: 10/31					
Verbal Plugging: N/A					
	***	2 3/8" 4.7#	7367'		
Date I chinission granted on.		2 0/0 4.111	700.	- 	
Rotary Cable Rig		- A - d - tH d \		 	
Total Vertical Depth (ft): 7140' TVD	(deepest poil	nt arillea)		 	
Total Measured Depth (ft): 7032' TV	U (BHL), 1354	19' MD			
Fresh Water Depth (ft.): est. 230'					
Salt Water Depth (ft.): est. 685', 10	060'				
Is coal being mined in area (N/Y)? N					
Coal Depths (ft.): Pad is constructed on reclaim	ned PHG coal bench				
Void(s) encountered (N/Y) Depth(s)					
			<u> </u>	-1	
N FLOW DATA (If more than two products	lucing formation	ons please inclu	de additional	data on separate	sheet)
roducing formation Marcellus		zone depth (ft)7)P)	
• •	: Initial open f		bl/d		
	Final open flow	_			
Time of open flow between initial and		Hours			
tatic rock Pressure 3300psig (surfa	ice pressure) af	fterHou	rs		Meo (
	Day 20	ne depth (ft)			Received Note of Oil R. JAN I. & 2017
econd producing formation	ray 20 l: Initial open f		bl/d		20 Of 3019
-	Final open flov		ol∕d	Child	Man of the Paris
	•	Hours			JAM -
Time of open flow between initial and					
tatic rock Pressurepsig (surf	ace pressure) a	retuon	113		

Shaural Vedi Signature

Were core samples taken? Yes	_No_X	ere cuttings caught during drilling? Yes X No
Were Electrical, Mechanical or Geoph Photo Density/ Compensated Neutron/ Temperature	ysical logs recorded on this well and Gamma Ray/ Array Induction	? If yes, please list Yes - CBL,
FRACTURING OR STIMULATIN	G, PHYSICAL CHANGE, ET CORD OF THE TOPS AND	E: 1). DETAILS OF PERFORATED INTERVALS, CC. 2). THE WELL LOG WHICH IS A SYSTEMATIC BOTTOMS OF ALL FORMATIONS, INCLUDING CE TO TOTAL DEPTH.
Perforated Intervals, Fracturing, or Sti	mulating:	
Perforations: 7,382'-13,488' (13	44 holes)	
Frac'd w/ 10,080 gals 15% HC	L Acid, 128,496 bbls Slick	Water carrying 662,409# 100 mesh,
2,544,445# 40/70 and 1,620,17	70# 20/40 sand.	
Plug Back Details Including Plug Type	e and Depth(s): N/A	
Formations Encountered: Surface:	Top Depth	/ Bottom Depth
Big Lime	1436'	1486'
Big Injun	1487'	2028'
Fifty Foot Sandstone	2029'	2210'
Gordon	2211'	2455'
Fifth Sandstone	2456'	2487'
Bayard	2488'	3133'
Speechley	3134'	3333'
Balltown	3334'	3858'
Bradford	3859'	4489'
Benson	4490'	4797'
Alexander	4798'	5158'
Elk	5159'	6661'
Middlesex	6662'	6849'
Burket	6850'	6877'
Tully	6878'	7094'
Marcellus	7095'	7140' TVD

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	12/26/2012
API#:	47-033-05583
	TIPDATED

District: Union Con Latitude: 10,590' Feet South of 39 Deg. 12 Longitude 7,810' Feet West of 80 Deg. 27 Company: Antero Resources Appalachian Corp Ca Address: 1625 17th Street Ca	unty: Hams	. 30 Sec 30 Sec		
Latitude: 10,590' Feet South of 39 Deg. 12 Longitude 7,810' Feet West of 80 Deg. 27 Company: Antero Resources Appalachian Corp Ca Address: 1625 17th Street Ca	Min Min sing &	. 30 Sec 30 Sec		
Longitude 7,810 Feet West of 80 Deg. 27 Company: Antero Resources Appalachian Corp Address: 1625 17th Street Ca	Min_	Sec. Used in		
Company: Antero Resources Appalachian Corp Address: 1625 17th Street Ca Tu	sing &	Used in		
Address: 1625 17th Street Ca			Left in well	
Address: 1625 17th Street Tu			l Lett in Well	10
Denver, CO 80202 20		drilling	2011 111 11011	Cement fill up Cu. Ft.
	0" 94#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System 13-	3/8" 54.5#	598'	598'	831 Cu. Ft. Class A
Inspector: Tristan Jenkins 9-	5/8" 36#	2752'	2752'	1121 Cu. Ft. Class A
Date Permit Issued: 1/25/2012 5-	1/2" 20#	15465'	15465'	3778 Cu. Ft. Class H
Date Well Work Commenced: 3/7/2012				
	3/8" 4.7#	7107'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary Cable Rig				
Total Vertical Depth (ft): 7162' TVD				
Total Measured Depth (ft): 15465' MD, 7161' TVD (Bi	IL)			
Fresh Water Depth (ft.): est. 175'				
Salt Water Depth (ft.): est. 1318', 1403', 1787', 2077'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): est. 103', 167', 223'				
Void(s) encountered (N/Y) Depth(s) N, N/A				

Were core samples taken? Yes	No_X Were	cuttings caught durin	ng drilling?	Yes X No
Were Electrical, Mechanical or Geophy Gamma Ray, and Dual Laterolog/Density Caliper/ Gar		If yes, please list	CBL, Photo De	ensity/Compensated Neutron/
NOTE: IN THE AREA BELOW FRACTURING OR STIMULATING DETAILED GEOLOGICAL RECOCOAL ENCOUNTERED BY THE V	G, PHYSICAL CHANGE, ETC ORD OF THE TOPS AND B	. 2). THE WELL LO OTTOMS OF ALL	OG WHICH FORMA	I IS A SYSTEMATIO
Perforated Intervals, Fracturing, or Stim	ulating:			
Perforations: 7199' - 15400' MD	<u>` </u>			,
Frac'd w/ 12,500 gals 15% HCL	Acid, 170,696bbls Slick Wa	ater carrying 887,	500# 100	mesh,
3,403,300# 40/70 and 2,037,100	# 20/40 sand.			
Plug Back Details Including Plug Type	and Depth(s): N/A			
				
Formations Encountered: Surface:	Top Depth			Bottom Depth
Big Lime	1,672'		1.	773'
Big Injun	1,774'		•	137'
Fifty Foot Sand	2,138'			,243'
Gordon	2,244'		-	534'
Fifth Sandstone	2,535'			576'
Bayard	2,577'			223'
Speechley	3,224'		3,	470'
Balltown	3,471'		-	989'
Bradford	3,990'			610'
Benson	4,611'		-	846'
Alexander	4,847'		•	994'
Elk	4,995'			592'
Rhinestreet	5,593'		_	.386'

6,387'

6,641'

6,809'

6,840'

6,958'

7,020'

6,640'

6,808'

6,839'

6,957'

7,019'

7,162'

Sycamore

Middlesex

Burkett

Hamilton

Marcellus

Tully

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	1/3/2013
API#:	47-001-03104F

arm name: Ward, A.M. & Jean W.	Operator Well No.: Ward 2241H Quadrangle: Brownton				
OCATION: Elevation: 1284'					
District: Union	County Barl	County: Barbour			
Latitude: 10,698' Feet South of 39 Deg.			C.		
		30 Se	c.		
Company: XTO Energy Inc					
Address: PO Box 1008, Jane Lew, WV 26378	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.	
	20"	40'	40'	CTS	
Agent: Gary Beall	13-3/8"	295'	295'	CTS	
Inspector: Bryan Harris	9-5/8"	2646'	2646'	CTS	
Date Permit Issued: 2/12/2010	5-1/2"	10313'	10313'	Lead 2390bb/Te0 293bb	
Date Well Work Commenced: 1/14/2011					
Date Well Work Completed: 10/4/12					
Verbal Plugging:					
Date Permission granted on:					
Rotary Cable Rig					
Total Vertical Depth (ft): 7,590'					
Total Measured Depth (ft): 10,313'	•				
Fresh Water Depth (ft.): None Noted					
Salt Water Depth (ft.): 1,295'					
Is coal being mined in area (N/Y)? N					
Coal Depths (ft.): None Noted					
Void(s) encountered (N/Y) Depth(s) None Noted					
Gas: Initial open flow MCF/d Oil: Initial open f	zone depth (ft)_flow 0 Btw 0 Btw Hours fter 12 Hours one depth (ft)_flowB	7588-7727 bl/d bl/d s	ata on separate s	heet)	
Final open flow MCF/d Final open flow Time of open flow between initial and final tests					
Static rock Pressurepsig (surface pressure) a					

all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Signature

Date

Were core samples taken? YesN	No X Were	cuttings caught during drilling? Y	esX No
Were Electrical, Mechanical or Geophysic	al logg recorded on this well? If	Yes- CBL	
This is a subsequent well. Antero only runs wireline logs on the firs	at Togs Tecorded off this Well? The well on a multi-pad (Gerrard Unit 1H API# 47-033-	yes, prease rist	Form WR-35 for Gerrard Unit 1H.
NOTE: IN THE AREA BELOW I FRACTURING OR STIMULATING, DETAILED GEOLOGICAL RECOR COAL ENCOUNTERED BY THE WE	PHYSICAL CHANGE, ETC. : D OF THE TOPS AND BO	2). THE WELL LOG WHICH INTOMS OF ALL FORMATI	IS A SYSTEMATIC
Perforated Intervals, Fracturing, or Stimula	ating:		
Perforations: 7382' - 13,919' MD (1	1,368 holes)		
Frac'd w/ 10,000 gals 15% HCL Ac	cid, 143,272 bbls Slick Wa	ter carrying 690,632# 100 r	mesh,
3,195,167# 40/70 and 2,173,270#	20/40 sand.	, , , , , , , , , , , , , , , , , , , ,	
Plug Back Details Including Plug Type and	d Depth(s): N/A		
Formations Encountered:	Top Depth	/ B	ottom Depth
Surface:			
Big Lime est.	1,551'	1,613'	
Big Injun est.	1,614'	1,983'	
Gantz Sand est.	1,984'	2,069'	
Fifty Foot Sandstone est. Gordon est.	2,070' 2,270'	2,269' 2,507'	
Fifth Sandstone est.	2,508'	3,225'	
Speechley est.	3,226'	3,440'	
Balltown est.	3,441'	3,917'	
Bradford est.	3,918'	4,559'	
Benson est.	4,560'	4,886'	
Alexander est.	4,887'	5,137'	
Elk est.	5,138'	6,413'	
Sycamore Sycamore	6,414'	6,690'	
Sonyea	6,691'	6,691'	
•		•	

6,692'

6,831'

6,867'

6,892'

7,025'

7,110'

Middlesex

Burket Tully

Hamilton

Marcellus

Genundewa

6,830'

6,866'

6,891'

7,024¹ 7,109¹

7,281' TVD

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WR-35 Rev (9-11)

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	1/3/2013
API#:	47-001-03133F

Farm name: Ward, A.M. & Jean W.	_ Operator We	II No.: Ward 22	245H	
LOCATION: Elevation: 1284'	_ Quadrangle:	Brownton		
District: Union Latitude: 10,801' Feet South of 39 Deg Longitude 14,023' Feet West of 80 Deg		00ur 1. 00 Se 1. 00 Se		
Company: XTO Energy Inc				
Address: PO Box 1008, Jane Lew, WV 26378	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	20"	40'	40'	CTS
Agent: Gary Beall	13-3/8"	294'	294'	CTS
Inspector: Bryan Harris	9-5/8"	2644'	2644'	CTS
Date Permit Issued: 4/23/2010	5-1/2"	10505'	10505'	Lend 220bbls/Tell 1300 sx
Date Well Work Commenced: 2/2/2011				
Date Well Work Completed: 10/1/2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig			 	
Total Vertical Depth (ft): 7,666	 	<u></u>		
Total Measured Depth (ft): 10,505	 			
				
				
Salt Water Depth (ft.): 1,288				<u> </u>
Is coal being mined in area (N/Y)?				
Coal Depths (ft.): None Noted				
Void(s) encountered (N/Y) Depth(s) None Noted			<u> </u>	
OPEN FLOW DATA (If more than two producing formation Producing formation Marcellus Pay 2 Gas: Initial open flow 123 MCF/d Oil: Initial open flow Final open flow 1318 MCF/d Final open flow Time of open flow between initial and final tests 24 Static rock Pressure 1480 psig (surface pressure) after the producing formation of the producing formation of the producing formation open flow 123 MCF/d Oil: Initial open flow final open flow psig (surface pressure) after the producing formation open flow 123 MCF/d Oil: Initial open flow flow 1318 MCF/d Final open f	zone depth (ft) 70 ow 0 Bb y 0 Bbl Hours	802-7731 N/d /d	ita on separate si	ncet)
Second producing formation Pay zon	e depth (ft)			
Gas: Initial open flowMCF/d Oil: Initial open flo	owBb			
Final open flow MCF/d Final open flow		/d		
Time of open flow between initial and final tests		•		
certify under penalty of law that I have personally examined a all the attachments and that, based on my inquiry of those individual the information is true, accurate, and complete.	nd am familiar v	with the inform	for obtaining th	
Signature			<u>4-13</u> Date	

Were core samples taken? Yes	No_X	Were cutting	gs caught during	drilling? Yes	X No
Were Electrical, Mechanical or Geoph		well? If yes,	please list_GR, RC)P, Directional Sur	vey, Total Gas, Mudlogs
NOTE: IN THE AREA BELOVER FRACTURING OR STIMULATING DETAILED GEOLOGICAL RECOUNTERED BY THE	NG, PHYSICAL CHANGE CORD OF THE TOPS A	E, ETC. 2). TI AND BOTTO	HE WELL LOO MS OF ALL	G WHICH IS FORMATIO	A SYSTEMATIC
Perforated Intervals, Fracturing, or Sti	mulating:				
Stg 1 Marcellus; 10,259'-10.446'; 72 shots; Slick wa	ter frac; Avg treating 5596 psi@86 bpr	m; 104,283#s 100	mesh; 302,869#s 30/5	50 mesh; 9224 bbl	water, 0 bbl treated water
Stg 2 Marcellus; 9844'-10,175; 60 shots; Slick water	r frac; Avg treating 5596 psi@81 bpm	n; 102,874#s 100 m	nesh; 240,855#s 30/5	0 mesh; 9018 bbl v	vater, 0 bbl treated water
Stg 3 Marcellus; 9616'-9789'; 60 shots; Slick water	frac; Avg treating 6629 psi@94 bpm;	; 102,885#s 100 m	nesh; 302,348#s 30/5	0 mesh; 9903 bbl v	vater, 0 bbl treated water
Stg 4 Marcellus; 9317'-9547'; 60 shots; Slick water	frac; Avg treating 5556 psi@94 bpm;	; 102,230#s 100 m	nesh; 300,902#s 30/5	0 mesh; 9995 bbl v	vater, 0 bbl treated water
Stg 5 Marcellus; 9003'-9233'; 60 shots; Slick water	frac; Avg treating 5308 psi@83 bpm	ı; 100,196#s 100 n	nesh;302,814#s 30/56	0 mesh; 9389 bbl v	vater, 0 bbl treated water
Stg 6 Marceilus; 8689'-8919'; 60 shots; Slick water	frac; Avg treating 5648 psi@84 bpm;	; 101,500#s 100 m	nesh; 301,317#s 30/5	0 mesh; 9379 bbl v	vater, 0 bbl treated water
Plug Back Details Including Plug Typ	e and Depth(s):				
Formations Encountered: Surface:	Top Deptl	<u>h</u>		Bot	tom Depth
Shale - Grey	0-100				
SS - Grey	100-130				
SS & SH- Brown	130-200				
SH - Red	200-215				
SH - Brown/Grey	215-595				
SH - Red	595-620				
SH & SS-Grey	620-735				
SS-White	735-790				
SS & SH Grey	790-1000				
SH- Black	1000-1040				
SS & SH-Grey	1040-1375				
SH - Red	1375-1420				
SH & SS-Grey	1420-1823				
continued on attached pag	je				

•••

Well Name: Ward 2245H API # 47-001-03104

Perforated Intervals, Fracturing, or Stimulation

Stg 7 Marcellus;8375'-8605'; 60 shots; Slick water frac; Avg treating 5619 psi@83 bpm; 100,435#s 100 mesh; 300,548#s 30/50 mesh; 9727 bbl water

Stg 8 Marcellus; 8061'-8242'; 60 shots; Slick water frac; Avg treating 6138 psi@82 bpm; 99,496#s 100 mesh; 250,067#s 30/50 mesh; 8518 bbl water

Ward 2245H

BIG INJUN* 1823 BASE* 1900 GANTZ SAND* 2060 BASE* 2079 50FT SAND* 2107 BASE* 2192 30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7447 TULLY LIMESTONE 7447 BASE 7447 TULLY LIMESTONE 7447 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		T
BASE* 1900 GANTZ SAND* 2060 BASE* 2079 50FT SAND* 2107 BASE* 2192 30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 3453 BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7602 MARCELLUS SHALE 7602 BASE 7604 BASE 7664 BASE 7668 ONONDAGA LIMESTONE 7731	FORMATION	TVD
GANTZ SAND* 2060 BASE* 2079 50FT SAND* 2107 BASE* 2192 30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		1823
BASE* 2079 50FT SAND* 2107 BASE* 2192 30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		
50FT SAND* 2107 BASE* 2192 30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		
BASE* 2192 30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7602 MARCELLUS SHALE 7602 BASE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		2079
30FT SAND* 2205 BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		2107
BASE* 2262 GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		2192
GORDON SAND* 2280 BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		
BASE* 2308 4TH SAND* 2537 BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		
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BASE* 2556 5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		2308
5TH SAND* 2621 BASE* 2662 UPPER BALLTOWN* 3439 BASE* 3453 BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		2537
BASE* UPPER BALLTOWN* BASE* 3453 BALLTOWN* 3517 BASE* LOWER BALLTOWN* 3723 BASE* GENESEO SHALE BASE 7447 TULLY LIMESTONE TULLY LIMESTONE TAULY L		
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BASE* BALLTOWN* BASE* LOWER BALLTOWN* BASE* LOWER BALLTOWN* BASE* GENESEO SHALE T418 BASE T447 TULLY LIMESTONE T447 BASE T484 HAMILTON SHALE T484 BASE T602 MARCELLUS SHALE T602 BASE T731 PURCELL LIMESTONE T664 BASE ONONDAGA LIMESTONE T731		2662
BALLTOWN* 3517 BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		3439
BASE* 3528 LOWER BALLTOWN* 3723 BASE* 3748 GENESEO SHALE 7418 BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		
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BASE 7447 TULLY LIMESTONE 7447 BASE 7484 HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731	BASE*	3748
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HAMILTON SHALE 7484 BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731	TULLY LIMESTONE	7447
BASE 7602 MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731	BASE	7484
MARCELLUS SHALE 7602 BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731		7484
BASE 7731 PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731	BASE	
PURCELL LIMESTONE 7664 BASE 7668 ONONDAGA LIMESTONE 7731	MARCELLUS SHALE	
BASE 7668 ONONDAGA LIMESTONE 7731	BASE	7731
ONONDAGA LIMESTONE 7731	PURCELL LIMESTONE	7664
	BASE	
BASE** 7748	ONONDAGA LIMESTONE	
	BASE**	7748

^{*} Tops projected from offset log due to air drilling and therefore not logging this section ** Tops projected from offset isopach did not drill through these tops

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	12-18-2012	
API#:	47-009-00110	

ne: Sandra Parr BRK 3H	Operator Wel			
ON: Elevation: 1280'	Quadrangle: _	Bethany WV		
District: Buffalo	County: Brook			
	g. 12 Min			
Longitude 10640 Feet West of 80 De	eg. 30 Min	. <u></u>	5.	
Company: Chesapeake Appalachia, L.L.C.				
Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Oklahoma City, OK 73154-0496	20°	105'	105'	437 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	673'	673'	791 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	2067'	2067'	881 Cu. Ft.
Date Permit Issued: 11-16-2011	5 1/2"	11425'	11425'	2722 Cu. Ft.
Date Well Work Commenced: 7-6-2012				
Date Well Work Completed: 9-23-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig				
Total Vertical Depth (ft): 6423'				
Total Measured Depth (ft): 11425'				
Fresh Water Depth (ft.): 175'				
Salt Water Depth (ft.): 1260'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 613'				
Void(s) encountered (N/Y) Depth(s) N				<u> </u>
N FLOW DATA (If more than two producing form reducing formation Marcellus Pas: Initial open flow MCF/d Oil: Initial open Final open flow 1.327° MCF/d Final open flow MCF/d Fina	ay zone depth (ft) in flowF flowB	8,890-11,294 Bbl/d bl/d		
tatic rock Pressure 4,119° psig (surface pressure) after 45 Ho	urs		and Daniel
	1 1 (0)		وي المالية الم	المنتشئ المن المنتسلين
econd producing formation Pay	zone depth (ft)	Bhl/d	15 m	Sir Jun.
Final open flow MCF/d Final open	flowB	bl/d	C Jiling	in the form
Time of open flow between initial and final tests attic rock Pressure 4.119° psig (surface pressure econd producing formation Pay as: Initial open flow MCF/d Oil: Initial open Final open flow MCF/d Final open Time of open flow between initial and final tests tatic rock Pressure psig (surface pressure under penalty of law that I have personally examinate the complete of the second of the second open flow in the	Hou	rs	ĺ,	The state of the s
tatic rock Pressurepsig (surface pressure	e) afterHo	urs	A	" LABOURA OF

Marleri Welliams 12-21-2013
Signature Date

Were core samples taken? YesNo_N	Were cuttings caught during drilling?	Yes Y No
Were Electrical, Mechanical or Geophysical logs record open hole logs run from 55-2080' MD; LWD GR from 5700-11425' MD.	ded on this well? If yes, please list GR, neutron, o	density, and resistivity
NOTE: IN THE AREA BELOW PUT THE FRACTURING OR STIMULATING, PHYSICAL DETAILED GEOLOGICAL RECORD OF THE COAL ENCOUNTERED BY THE WELLBORE F	CHANGE, ETC. 2). THE WELL LOG WHICE TOPS AND BOTTOMS OF ALL FORMA	H IS A SYSTEMATIC
Perforated Intervals, Fracturing, or Stimulating:		
See attached		
Plug Back Details Including Plug Type and Depth(s):		
Formations Encountered: Surface:	Top Depth /	Bottom Depth
See attached		

PERFORATION RECORD ATTACHMENT

Weil Number and Name: 833979 Sandra Parr BRK 3H

PERFO	RATION RE	CORD				STIMULAT	ION RECOR	RD.		
	Interval P	erforated				F	luid	Propp	ing Agent	Average
Date	From	То	Date	Interval	Treated	Туре	Amount	Туре	Amount	Injection
8/4/2012	10,731	11,294	9/19/2012	10,731	11,294	Slk wtr	13,711	Sand	804,140	79.4
9/19/2012	10,204	10,658	9/20/2012	10,204	10,658	Slk wtr	13,047	Sand	809,660	80
9/20/2012	9,660	10,105	9/20/2012	9,660	10,105	Slk wtr	14,607	Sand	805,140	77
9/21/2012	9,099	9,553	9/21/2012	9,099	9,553	Slk wtr	12,636	Sand	805,780	79.8
9/21/2012	8,542	9,001	9/21/2012	8,542	9,001	Slk wtr	12,680	Sand	804,680	79.9
9/22/2012	7,995	8,449	9/22/2012	7,995	8,449	Slk wtr	12,870	Sand	803,440	79.2
9/23/2012	7,442	7,896	9/23/2012	7,442	7,896	Slk wtr	13,766	Sand	806,220	78.9
9/23/2012	6,890	7,344	9/23/2012	6,890	7,344	Slk wtr	13,305	Sand	807,780	78.7
										
			 							
			 							
										
			l l							

LATERAL WELLBORE (no vertical pilot hole associated with this well)

Maximum TVD of wellbore: 6423 ft TVD @ 7906 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS	0	0	350	350
SHALE	350	350	613	613
PITTSBURG COAL	613	613	621	621
SHALE	621	621	700	700
SS	700	700	1200	1200
SS/LS	1200	1200	1320	1320
SS	1320	1320	1650	1650
BIG LIME	1650	1650	1770	1770
BIG INJUN (SS)	1770	1770	1967	1967
SHALE	1967	1967	6257	6216
GENESEO (SH)	6257	6216	6281	6233
TULLY (LS)	6281	6233	6348	6276
HAMILTON (SH)	6348	6276	6678	6398
MARCELLUS (SH)	6678	6398		
TD OF LATERAL			11425	6337

State of West Virginia Department of Environmental Protection Office of Oil and Gas

DATE:	6/22/11
API#:	470510138

Marshall Min. 30 Se Min. 469' Min. 469' Min. 419' Min. 4		Cement fill up Cu. Ft. Sanded in 516 1099 circ
Min. 30 Se Min. 30 Se Min. 30 Se Used in drilling 60' 469' 1130' 2419'	60' 469' 1130' 2419'	up Cu. Ft. Sanded in 516
Min. 30 Se Min. 30 Se Min. 30 Se Used in drilling 60' 469' 1130' 2419'	60' 469' 1130' 2419'	up Cu. Ft. Sanded in 516
Used in drilling 60' 469' 1130' 2419'	Left in well 60' 469' 1130' 2419'	up Cu. Ft. Sanded in 516
drilling 60' 469' 1130' 2419'	60' 469' 1130' 2419'	up Cu. Ft. Sanded in 516
drilling 60' 469' 1130' 2419'	60' 469' 1130' 2419'	up Cu. Ft. Sanded in 516
469' 1130' 2419'	469' 1130' 2419'	516
1130' ' 2419'	1130' 2419'	
' 2419'	2419'	1099 circ
11425'	11425'	1059 circ
	11420	2707'
		<u>'</u>
	include additional (ft) 6841'	include additional data on separate s

ıd eve that the information is true, accurate, and complete.

Signature

Date

Were core samples taken? Yes	No_X Wen	re cuttings caught o	during drilling? Yes X No
Were Electrical, Mechanical or Geophysi	ical logs recorded on this well?	If yes, please list_	Gamma Ray/Cement Bond Log
NOTE: IN THE AREA BELOW FRACTURING OR STIMULATING, DETAILED GEOLOGICAL RECO COAL ENCOUNTERED BY THE W	, PHYSICAL CHANGE, ETO RD OF THE TOPS AND I	C. 2). THE WELI BOTTOMS OF	LOG WHICH IS A SYSTEMATIC ALL FORMATIONS, INCLUDING
Perforated Intervals, Fracturing, or Stimu	lating:		
560 shots			
Sand 3,166,000 # 100 mesh			
Sand 3,028,400 # 40/70 mesh			
114,680 Bbl treated FW			
Plug Back Details Including Plug Type a	nd Depth(s): NA		
Formations Encountered: Surface:	Top Depth	/	Bottom Depth
Sandstone	500	1	650
Sandstone & Shale	650	1	800
Sandstone/Coal	800	1	910
Sandstone	910	1	980
Shale/Coal	980	1	1010
Sandstone	1010	1	1900
Sandstone & Shale	1900	/	2616
Shale	2616	1	2926
Shale	2926	1	3000
Sandstone	3000	1	3350
Sandstone & Shale	3350	1	6446
Burkett	6446	1	6465
Tully	6465	1	6496
Hamilton	6496	1	6595
Marcellus	6595	/	11425

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	6/22/11	
API #:	4705101393	

n name: Hazlett	_ Operator Wel		_, . 	
CATION: Elevation: 1155.39	Quadrangle: _	Moundsville		<u></u>
District: Union	_ County: Mars	hall		
Latitude: 13940 Feet South of 40 Deg	. <u>00 Mir</u>	ı. <u>00</u> Se		
Longitude 2343 Feet West of 80 De	g. <u>42</u> Min	ı. <u>30</u> Se	c.	
Company: Chief Oil & Gas				
Address: 5956 Sherry Ln - Suite 1500	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Dallas, TX 75225	24°	80'	80'	Sanded in
Agent: Chad S. Lovejoy	20"	397'	397'	487 circ
Inspector: Bill Hendershot	13 3/8"	920'	920'	837 circ
Date Permit Issued: 11/23/10	9 5/8"	2313'	2313'	910 circ
Date Well Work Commenced: 11/22/10	5 1/2"	10933'	10933'	2134
Date Well Work Completed: 12/21/10				
Verbal Plugging:				
Date Permission granted on:				
Rotary Z Cable Rig				
Total Vertical Depth (ft): 6155'				
Total Measured Depth (ft): 10933'		<u> </u>		† · · · · · · · · · · · · · · · · · · ·
Fresh Water Depth (ft.): 98'				
Salt Water Depth (ft.): NA				
Is coal being mined in area (N/Y)? N		<u> </u>		
Coal Depths (ft.): 635'				
Void(s) encountered (N/Y) Depth(s) N				
voids) encountered (14.1) Depui(s)		J		<u></u>
OPEN FLOW DATA (If more than two producing format	•		ata on separate s	heet)
- <u> </u>	zone depth (ft)			
Gas: Initial open flow MCF/d Oil: Initial open Final open flow 2200 MCF/d Final open flow		bl/d ol/d		
Time of open flow between initial and final tests ⁴⁸	Hours			
Static rock Pressure NA psig (surface pressure)				
			,.	
• • • • • • • • • • • • • • • • • • • •	one depth (ft)		•	
Gas: Initial open flowMCF/d Oil: Initial open		bl/d		
Final open flowMCF/d Final open flo		ol/d		
Time of open flow between initial and final tests				
Static rock Pressurepsig (surface pressure) a	afterHou	ırs		

all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Signature i

Date

ogs recorded on this well	? If yes, please list G	amma/Cement Bond Log
YSICAL CHANGE, ET OF THE TOPS AND	C. 2). THE WELL BOTTOMS OF A	LOG WHICH IS A SYSTEMATIC LL FORMATIONS, INCLUDING
; :		
epth(s): NA		
Top Depth	I	Bottom Depth
2300	1	2420
2420	1	2750
2750	1	2790
2890	1	3080
3080	1	3650
3650	1	4550
4550	1	5690
5690	1	5920
5920	1	6083
6083	1	6203
6203	1	6230
֡֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜	YSICAL CHANGE, ETOF THE TOPS AND BORE FROM SURFACE. Epth(s): NA Top Depth 2300 2420 2750 2890 3080 3650 4550 5690 5920 6083 6203	Pepth(s): NA Top Depth / 2300 / 2420 / 2750 / 2890 / 3080 / 3650 / 4550 / 5690 / 5920 / 6083 /

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	6/22/11
API#:	4705101395

OCATION: Elevation: 1080	Quadrangle: Moundsville County: Marshal Min. 00 Sec.			
District: Webster				
Latitude: 11054 Feet South of 39 Deg.				
Longitude 8184 Feet West of 80 Deg	. <u>37</u> Min	. 30 Se	ec.	
Company: Chief Oil and Gas				
Address: 5956 Sherry Ln, Suite 1500	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Dallas, Texas 75225	24"	80	80	Sanded in
Agent: Chad S. Lovejoy	20"	483	483	468 cts
Inspector: Bill Hendershot	13 3/8"	908	908	910 cts
Date Permit Issued: 10/27/10	9 5/8"	2154	2154	918 cts
Date Well Work Commenced: 12/19/10	5 1/2"	11328	11328	2298
Date Well Work Completed: 01/21/11				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig				
Total Vertical Depth (ft): 6552				
Total Measured Depth (ft): 11345				
Fresh Water Depth (ft.): NA				
Salt Water Depth (ft.): NA				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 605				
Void(s) encountered (N/Y) Depth(s) N				
OPEN FLOW DATA (If more than two producing formation Producing formation Marcellus Pay Gas: Initial open flow NA MCF/d Oil: Initial open flow NA MCF/d Final open flow Time of open flow between initial and final tests NA Static rock Pressure NA psig (surface pressure) at	zone depth (ft) 6 Row NA B W NA Bb Hours	8552' bl/d	lata on separate s	heet)
	1104	13		• •
Second producing formation NA Pay zone depth (ft)			<i>3</i>	
• • • • • • • • • • • • • • • • • • • •				•
Gas: Initial open flow MCF/d Oil: Initial open f		1/4		
Gas: Initial open flow MCF/d Oil: Initial open f	wBb			

Were core samples taken? Yes	ere core samples taken? Yes No Were cuttings caught during drilling? Yes No					
Were Electrical, Mechanical or Geophys	ere Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list MWD Gamma					
NOTE: IN THE AREA BELOW FRACTURING OR STIMULATING DETAILED GEOLOGICAL RECO COAL ENCOUNTERED BY THE W	, PHYSICAL CHANGE, ETC. RD OF THE TOPS AND B	. 2). THE WEL OTTOMS OF	L LOG WHICH IS A SYSTEMATIC ALL FORMATIONS, INCLUDING			
Perforated Intervals, Fracturing, or Stimu	ulating:					
400 holes						
100,991 Bbl FW						
3,401,200 # 100 mesh sand						
3,554,000 # 40/70 mesh sand						
Plug Back Details Including Plug Type a	and Depth(s): NA					
Formations Encountered: Surface:	Top Depth	ļ	Bottom Depth			
Sandstone/Shale	0	1	497			
Coal/Sandstone/Shale	497	1	605			
Pittsburgh Coal	605	i	685			
Sandstone	685	1	728			
Claystone	728	1	893			
Sandstone	893	1	3229			
Shale/Sandstone	3229	1	6295			
Burkett	6295	1	6342			
Tully	6342	1	6380			
Hamilton	6380	1	6552			
Marcellus	6552	1	11345			

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	8/03/2012
API#:	47-049-02129

me: Cain, Richard		II No.: Fenn A 1H		775
TION: Elevation: 1.251'	_ Quadrangle:	Sittniston		—AUG 0 6
District: Lincoln	County: Marie	on		-AUG ne
Latitude: 610 Feet South of 39 Deg		n. ³⁰ Sec n. ³⁰ Sec	2.	
Longitude 7,330° Feet West of 80 Deg	5. <u></u> 14111	.i. <u></u> 500		
Company: XTO Energy, Inc.			* %.*	Cement fill
Address: PO Box 1008, Jane Lew, WV 26378	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	20"	120'	114'	C.T.S.
Agent: Gary Beall	13 3/8°	462'	462'	401.2 cuft
Inspector: Tristan Jenkins	9 5/8"	3,046'	3,046'	1020 cuft
Date Permit Issued: 12/27/2010	5 1/2"	12,700'	12,670'	2634.72 cu
Date Well Work Commenced: 5/30/2011				
Date Well Work Completed: 10/28/2011				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig		<u> </u>		
Total Vertical Depth (ft): 7,490				
Total Measured Depth (ft): 12,700'				
Fresh Water Depth (ft.): 406'				<u> </u>
Salt Water Depth (ft.): None Noted				_
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): None Noted				
Void(s) encountered (N/Y) Depth(s) 412'				<u> </u>
Producing formation Marcellus Pa Gas: Initial open flow Show MCF/d Oil: Initial open Final open flow Show MCF/d Final open flow Time of open flow between initial and final tests— Static rock Pressure—————————————————————————————————	y zone depth (ft n flow low Hou n after Ho zone depth (ft)_ n flow) 7484-7480' Bbl/d Bbl/d rs ours Bbl/d	data on separate	sheet)
Time of open flow between initial and final tests_	Hou	irs		
Static rock Pressurepsig (surface pressure)	A	21100		

all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Date

Were core samples tak	cen? Yes	No X	Were cuttin	gs caught during drilli	ng? YesX	No
Were Electrical, Mech	nanical or Geoph	ysical logs recorded on	this well? If yes,	please list		
FRACTURING OR DETAILED GEOL	STIMULATIN OGICAL REC ERED BY THE	W PUT THE FOLI IG, PHYSICAL CHA CORD OF THE TOI WELLBORE FROM mulating:	NGE, ETC. 2). T PS AND BOTTO	HE WELL LOG WH OMS OF ALL FOR	IICH IS A SY	YSTEMATIC
Stg 1 Marcellus; 12,418'-12,59						
Stg 2 Marcellus; 12,159'-12,33	7; 72 shots; Slick water	er frac; Avg treating 7151 psi@	74 bpm; 74,374#s 100 m	esh; 267,916#s 30/50 mesh; 7	7,118 bbl water, 63	7 bbl treated water
Stg 3 Marcellus; 11,900'-12,07	8; 72 shots; Slick water	er frac; Avg treating 7249 psi@	77 bpm; 74,001#s 100 m	esh; 263,863#s 30/50 mesh; 6	6,824 bbl water, 96	9 bbl treated water
Stg 4 Marcellus; 11,641'-11,81	9; 72 shots; Slick water	er frac; Avg treating 7280 psi@	76 bpm; 75,791#s 100 m	esh; 174,457#s 30/50 mesh; 6	5,134 bbl water, 77	8 bbl treated water
Stg 5 Marcellus; 11,382'-1	1,560; 72 shots; Sli	ck water frac; Avg treating	7251 psi@81 bpm; 7	3,427#s 100 mesh; 265,67	8#s 30/50 mesh	; 8,168 bbl water
Stg 6 Marcellus; 11,123'-1			7100 psi@81 bpm; 7	5,500#s 100 mesh; 265,30	5#s 30/50 mesh	; 7,878 bbl water
Plug Back Details Inc	luding Plug Type	e and Depth(s):				
See addtional pa	age					
Formations Encounte Surface:	ered:	Тор	Depth	_/	AUG 06	ii OCCIO
Little Lime	1710					
Big Lime	1741			- V	V Departi Inmental	ment or
Big Injun	1836			2011 H.C	- ابتران ·نسر: ۱۱۰ از 	- 70、80//
5th Sand	2809					
Balltown	3709					
Geneseo Shale	7197 - 7241			·		
Tully Limestone	7241 - 7291					
Hamilton Shale	7291 - 7349					
Marcellus Shale	7349 - 7450					
Purcell Limestone	7450 - 7490					
						
			·			

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State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	8/03/2012	
API#:	47-049-02138	

ame: Cain, Richard	Operator Well No.: Fenn A 10H			
TION: Elevation: 1,251'	Quadrangle: Shinnston			
District: Lincoln	County: Mario	on		
Latitude: 630' Feet South of 39 Deg.	27 Min			
Longitude 7,340 Feet West of 80 Deg.	17 Min	. <u>30</u> Sec	•	
Company XTO Energy, Inc.				
Company: ATO Energy, Inc. Address: PO Box 1008, Jane Lew, WV 26378	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
71444000	20°	73'	73'	97 sks
Agent: Gary Beall	13 3/8"	605'	605'	401.2 cuft
Inspector: Tristan Jenkins	9 5/8"	3,043'	3,043'	1266 cuft
Date Permit Issued: 1/28/2011	5 1/2°	11,210'	11,210'	2864.1 cut
Date Well Work Commenced: 6/04/2011				
Date Well Work Completed: 1/09/201@ 3-				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig				_
Total Vertical Depth (ft): 7,489'				
Total Measured Depth (ft): 11,210'				
Fresh Water Depth (ft.): None Noted				
Salt Water Depth (ft.): None Noted				
Is coal being mined in area (N/Y)? N				-
Coal Depths (ft.): None Noted			<u> </u>	
Void(s) encountered (N/Y) Depth(s) N	<u></u>			
Gas: Initial open flow Show MCF/d Oil: Initial open	zone depth (ft)	97451-7489 Bbl/d		sheet)
Final open flow Show MCF/d Final open flo	wE	BbI/d		•
Time of open flow between initial and final tests	rfterHou	rs ours	ħ	પ્રેષ્ટ ફેર્મ કહ્ય
•			- 4 13 *	en and entered
Second producing formation Pay zerosas: Initial open flow MCF/d Oil: Initial open Final open flow MCF/d Final open flow MCF/d Final open flow MCF/d Final open flow between initial and final tests	flow wI	BbI/d BbI/d		*

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

8-3-1 Z Date

Were core samples tak	ken? Yes	_ _{No} X	Were c	uttings caught du	ring drilling?	Yes No
Were Electrical, Mech	anical or Geophy	ysical logs recorde	d on this well? If	yes, please list	7.	
FRACTURING OR	STIMULATIN OGICAL REC CRED BY THE	G, PHYSICAL C CORD OF THE WELLBORE FR	CHANGE, ETC. 2 TOPS AND BO). THE WELL TTOMS OF A	LOG WHICH LL FORMAT	ATED INTERVALS, IS A SYSTEMATIC TIONS, INCLUDING
Stg 1 Marcellus; 10,967'-1	1,145; 72 shots; Sli	ck water frac; Avg tre	ating 7160 psi@76 bp	om; 51,795#s 100 m	nesh; 153,201#s 3	0/50 mesh; 6613 bbl water
Stg 2 Marcellus; 10,708'-10	0,886; 72 shots; Sli	ck water frac; Avg tre	ating 7264 psi@79 bp	om; 50,002#s 100 m	nesh; 149,118#s 3	0/50 mesh; 5182 bbl water
Stg 3 Marcellus; 10,449'-10,62	7; 72 shots; Slick water	er frac; Avg treating 7123	3 psi@80 bpm; 68,392#s	100 mesh; 231,663#s	30/50 mesh; 6511 t	bl water, 501 bbl treated water
Stg 4 Marcellus; 10,190'-10,36	8; 72 shots; Slick wate	er frac; Avg treating 7056	psi@80 bpm; 71,028#s	100 mesh; 221,723#s	30/50 mesh; 6,249 b	bl water, 624 bbl treated water
Stg 5 Marcellus; 9,931'-10,109	; 72 shots; Slick water	r frac; Avg treating 7179	psi@83 bpm; 86,067#s	100 mesh; 260,721#s	30/50 mesh; 7371 b	bl water, 826 bbl treated water
Stg 6 Marcellus; 9,672'-9,850'	; 72 shots; Slick wate	or frac; Avg treating 720	psi@80 bpm; 88,594#	s 100 mesh; 267,058#	s 30/50 mesh; 7,34	5 bbl water, 816 treated water
Plug Back Details Inc	luding Plug Type	e and Depth(s):				
See addtional pa	age					
Formations Encounte Surface:	red:		Top Depth	/		Bottom Depth
Little Lime	1710					
Big Lime	1741				···	
Big Injun	1836					
5th Sand	2809					
Balltown	3709					
Geneseo Shale	7194 - 7235	· · · · · · · · · · · · · · · · · · ·				
Tully Limestone	7235 - 7284					
Hamilton Shale	7284 - 7348					
Marcellus Shale	7348 - 7444					
Purcell Limestone	7444 - 7489	- 				
						
					Calca C.	ys 20 m
					NIG P	Will 3
						BENGOTE CO

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	12-4-2012	. V
API#:	47-069-00109	

m name; Mark Hickman OHI 8H CATION: Elevation: 1285'	Operator Well Quadrangle: V			<u></u>
	_			
District: Triadelphia	County: Ohio			
Latitude: 1660' Feet South of 40 Deg. Longitude 720' Feet West of 60 Deg.	02 Min. 32 Min.			
Dongitude 15 Took West of 55 Deg.	WIIII.		••	
Company: Chesapeake Appalachia, L.L.C.	,			
Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Oklahoma City, OK 73154-0496	13 3/8°	761'	761'	589 Cu. Ft.
Agent: Eric Gillespie	9 5/8"	2280'	2280'	1010 Cu. Ft.
Inspector: Bill Hendershot	5 1/2"	14149'	14149'	3345 Cu. Ft.
Date Permit Issued: 3-1-2012				
Date Well Work Commenced: 5-19-2012				
Date Well Work Completed: 9-10-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig				
Total Vertical Depth (ft): 6801'				
Total Measured Depth (ft): 14151'				
Fresh Water Depth (ft.): 30'				
Salt Water Depth (ft.): 1015'			•	
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 713'	-			
Void(s) encountered (N/Y) Depth(s) 713-721' COAL VOID				
OPEN FLOW DATA (If more than two producing formation		do additional d	nto on concepts a	haat)
Producing formation Marcellus Pay 2	•		ata on separate s	песту
Gas: Initial open flow MCF/d Oil: Initial open fl				
Final open flow 2.352° MCF/d Final open flow	95 Bb	I/d		
Time of open flow between initial and final tests 156	Hours			
Static rock Pressure 4.421* psig (surface pressure) aft	terHour	2		
Second producing formation Pay zor	ne depth (ft)			
Gas: Initial open flow MCF/d Oil: Initial open fl	owBb	ol/d		
Final open flow MCF/d Final open flow	Bbl	1/d		
Time of open flow between initial and final tests	Hours			
Static rock Pressure psig (surface pressure) aft	er Hour	•		

that the information is true, accurate, and complete.

| Manual Callians | 12/1-2012 |
| Signature | Date

Were core samples taken?	Yes	_No_X	We	re cuttings caught	during drilling?	? Yes	No_X
Were Electrical, Mechanica	l or Geoph	ysical logs rec	corded on this well?	If yes, please list	LWD GR fror	n 6,070' -	14,150' MD
NOTE: IN THE AREA FRACTURING OR STIN DETAILED GEOLOGIC COAL ENCOUNTERED	MULATIN	G, PHYSICA CORD OF T	AL CHANGE, ET HE TOPS AND	C. 2). THE WEL BOTTOMS OF	L LOG WHIC ALL FORMA	CH IS A S	YSTEMATIC
Perforated Intervals, Fractur	ing, or Sti	mulating:					
See attached							
						······································	
Plug Back Details Including	Plug Type	and Depth(s)):				
					<u> </u>		
Formations Encountered: Surface:			Top Depth	/		Bottom 1	<u>Depth</u>
See attached							
							
							

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	12-4-2012	6
API#:	47-069-00082	•

m name: Mark Hickman 5H	-	II No.: 833343				
CATION: Elevation: 1285'	Quadrangle:	Quadrangle: Valley Grove WV				
District: Triadelphia	County: Ohio)				
Latitude: 1840' Feet South of 40 De	eg. 02 Min. 30 Sec.					
Longitude 710' Feet West of 80 D	eg. 32 Min	n. <u>30</u> Se	c.			
Company: Chesapeake Appalachia, L.L.C.						
Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.		
Oklahoma City, OK 73154-0496	13 3/8"	759	759'	112 Cu. Ft.		
Agent: Eric Gillespie	9 5/8°	2265'	2265'	920 Cu. Ft.		
Inspector: Bill Hendershot	5 1/2"	13078'	13078'	3312 Cu. Ft		
Date Permit Issued: 5-17-2011						
Date Well Work Commenced: 8-14-2011						
Date Well Work Completed: 9-9-2012						
Verbal Plugging:						
Date Permission granted on:						
Rotary Cable Rig						
Total Vertical Depth (ft): 6698'						
Total Measured Depth (ft): 13078'						
Fresh Water Depth (ft.): 30'						
Salt Water Depth (ft.): 1015'						
Is coal being mined in area (N/Y)? N						
Coal Depths (ft.): ~700'						
Void(s) encountered (N/Y) Depth(s) Y ~700'						
OPEN FLOW DATA (If more than two producing form	ay zone depth (ft)		lata on separate s	sheet)		
Final open flow 2,405° MCF/d Final open		bl/d	x*			
Time of open flow between initial and final tests			3.04			
Static rock Pressure 4.297* psig (surface pressure) afterHou	urs	- H. Comp	The state of the s		
Second producing formation Pay	zone depth (ft)_		Den .	المتقائب أن		
Gas: Initial open flowMCF/d Oil: Initial open	n flowE	Bbl/d		S ZUIZ		
Final open flow MCF/d Final open		bl/d	ronmantal			
Time of open flow between initial and final tests_		s ~··!VI	ronmonia	Marine Commence		
Static rock Pressurepsig (surface pressure) afterHou	urs	"'स्त्राः	TOL		

all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

) Muler (L'Uli ana Signature

2-//-22/6 Date

Were core samples taken? YesNo_X	Were cuttings cau	ight during drilling?	YesNo_X
Were Electrical, Mechanical or Geophysical logs recorded	on this well? If yes, please	e list_LWD GR from	5,442' - 13,016 MD
NOTE: IN THE AREA BELOW PUT THE FOR FRACTURING OR STIMULATING, PHYSICAL CH DETAILED GEOLOGICAL RECORD OF THE TO COAL ENCOUNTERED BY THE WELLBORE FROM	ANGE, ETC. 2). THE WORDS OF	ELL LOG WHICH OF ALL FORMAT	I IS A SYSTEMATIC
Perforated Intervals, Fracturing, or Stimulating:			
See attached			
Plug Back Details Including Plug Type and Depth(s):			
Formations Encountered: To Surface:	p Depth /		Bottom Depth
See attached			

State of West Virginia Department of Environmental Protection Office of Oil and Gas Well Operator's Report of Well Work

DATE:	1-3-2013	:
API#:	47-069-00073	

	Sec. Sec. Left in well 96' 690' 2137'	Cement fill up Cu. Ft. 280 Cu. Ft. 802 Cu. Ft.
Min. 30 S Min. 30 S g & Used in drilling 0" 96' 3/8" 690' 5/8" 2137'	Left in well 96' 690'	up Cu. Ft. 280 Cu. Ft. 802 Cu. Ft.
Min. 30 S g & Used in drilling 0" 96' 3/8" 690'	Left in well 96' 690'	up Cu. Ft. 280 Cu. Ft. 802 Cu. Ft.
g & Used in drilling 0" 96' 3/8" 690' 5/8" 2137'	Left in well 96' 690'	up Cu. Ft. 280 Cu. Ft. 802 Cu. Ft.
g drilling 0" 96' 3/8" 690' 5/8" 2137'	96'	up Cu. Ft. 280 Cu. Ft. 802 Cu. Ft.
g drilling 0" 96' 3/8" 690' 5/8" 2137'	96'	up Cu. Ft. 280 Cu. Ft. 802 Cu. Ft.
0" 96' 3/8" 690' 5/8" 2137'	690'	280 Cu. Ft. 802 Cu. Ft.
3/8" 690' 5/8" 2137'	690'	802 Cu. Ft.
5/8" 2137'		
	2137'	
1/2" 11402'		870 Cu. Ft.
l l	11402'	2666 Cu. Ft.
	ase include additional apth (ft) 7,078-11,280	ase include additional data on separate

all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Signature

-3:2013 Date

Were core samples taken?	Yes	No_N	Wer	e cuttings caught	during drilling?	Yes_Y	No
Were Electrical, Mechanica open hole logs run from 62-2161' MD	l or Geophy ; LWD GR from	ysical logs reco 5400-11405' MD.	rded on this well?	If yes, please list	GR, neutron,	density, ar	nd resistivity
NOTE: IN THE AREA FRACTURING OR STIN DETAILED GEOLOGIC COAL ENCOUNTERED	MULATING CAL REC	G, PHYSICAI ORD OF TH	L CHANGE, ETC E TOPS AND E	C. 2). THE WEL BOTTOMS OF	L LOG WHIC ALL FORMA	H IS A SY	STEMATIC
Perforated Intervals, Fractur	ring, or Stin	nulating:					
See attached							
			•				
						 	
		15 1()			-		
Plug Back Details Including	g Plug Type	and Depth(s):					
			 				
Formations Encountered: Surface:			Top Depth			Bottom D	<u>Depth</u>
See attached							
			 \				
							
				-			
		-					
	, ,						-
			· · · · · · · · · · · · · · · · · · ·				

State of West Virginia **Division of Environmental Protection** Section of Oil and Gas Well Operator's Report of Well Work

Farm name:

LEMASTERS, DAVID W. AND BA

Operator Well No.: B.A. SWIGER 10

LOCATION:

Elevation:

1,171'

Quadrangle:

CENTERPOINT 7.5'

District:

MCELROY

County: TYLER

Latitude:

6,790 Feet south of

39 Deg 27 Min

Longitude:

11,205 Feet west of

30 Sec.

80 Deg 40 Min Sec.

Company Address:	HG Energ PO Box 5 Vienna, V		Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector: Joe Taylor						
Date Permit Issued: 09/14/2012			<u></u>			
Date Well Wo	rk Commenced:	11/06/2012				
Date Well Wo	rk Completed:	12/03/2012				
Verbal Pluggir	ng:					
Date Permission Granted On:						
Rotary X	Cable	Rig	7"	759'	759'	280 sks
Total vertical l	Depth (ft):	3189'				
Total Measure	d Depth (ft):	3515'				
Fresh Water D	epth (ft):	440'	4 1/2"	3438.4'	3438.4'	275 sks
Salt Water De	pth (ft):	1490'				
Is Coal being 1	mined in ares (Y/N)? No				
Coal Depths (f	ft): x	956'-966'				
Void(s) encountered (Y/N) depth(s):						
	NONE		1			
						1

OPEN FLOW DA		erflood Producer			
	This well drille	d directionally 78.4° NE	a distance of 795'.		3282'-3286'
Producin	g formation	Gordon	Pay zone	e depth (ft)	3328'-3332'
	nitial open flow	* MCF/d	Oil: Initial open fl	ow '	* Bbl/d
	Final open flow	* MCF/d	Final open flo	ow	* Bbl/d
7	Time of open flow	between initial and fin	al tests	* Hou	
	ck pressure	* psig (si	urface pressure)	after	* Hours
Second n	oroducing formation		Pay zone	e depth (ft)	
	Initial open flow	MCF/d	Oil: Initial open fl	low Elli	6. G251/d
	Final open flow	MCF/d	Final open flo	W WC	Bbl/d
,	Time of open flow	between initial and fin	al tests	ow On Hou	rs ,
	ck pressure	psig (s	urface pressure)	after 5	Hours
I certify under nenalt	y of law that I have perso at, based on my inquiry of Jula	nally examined and am famili f those individuals immediate information is true, accurate	ly responsible for obtain	ing the intornati	adogument and all the

Were

Y Y/N Electrical,

N Y/N

Mechanical,

N

or Geophysical logs recorded on this well?

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment:

Treated perfs 3282'-3286', 3290'-3293', 3306'-3314', 3328'-3332' w/ 2000 gals 15% HCL, 420 bbls cross linked gel, and 20,000# 20/40 sand.

Well Log:

All depths are measured relative to KB (8' AGL).

Shale w/ sand streaks	0	-	956
Coal	956	-	966
Shale w/ sand streaks	966	-	1022
Sand	1022	-	1066
shale	1066	-	1313
sand	1313	-	1330
shale	1330	-	1352
sand	1352	-	1404
shale	1404	-	1490
sand	1490	-	1594
shale	1594	-	1696
sand	1696	-	1632
shale	1632	-	1792
sand	1792	-	1853
shale	1853	-	1950
sand	1950	-	1988
shale	1988	-	2066
sand	2066	-	2082
shale	2082	-	2180
sand	2180	-	2202
shale	2202	-	2206
sand	2206	-	2238
Big Lime	2238	-	2332
Big Injun	2332	-	2502
shale	2502	-	3244
Gordon stray	3244	-	3296
shale	3296	-	3306
Gordon	3306	-	3315
shale	3315	-	3326
sand	3326	-	3333
shale	3333	-	3515
TD	3515		
m D I	2452	VD.	

3453

T.D. -Logger

KB